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Osnovy Planirovaniya Perevozok na Zheleznodorozhnom Transporte (Fundamentals of the Planning of Hauling on Railroad Transport), Yu. I. Koldomasov, Gosudarstvennoye Transportnoye Zheleznodorozhnoye Izdatel'stvo, Moscow, 1949, pp 197-204, 272-281,

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HAULING TIMBER ON USSR RAILROADS

Hauling Characteristics

In 1947, timber hauling amounted to 7.8 percent in tons and 9.5 percent in ton-kilometers of the total freight turnover on the railroads. Of the total amount of timber hauled by the railroads, round timber amounted to 45 percent, construction timber and pit props amounted to 28 percent, sawed timber amounted to 16 percent, and railroad ties amounted to 11 percent.

Timber hauling on the USSR railroads is influenced by the geographical distribution of the timber producers, processing industries, and consumer industries.

The forest areas of the Soviet Union are distributed most irregularly. Notwithstanding the fact that nearly one third of the territory of the Soviet Union is covered with timber, slightly more than one fifth of all the timber resources is concentrated in European USSR, while the main timber reserves are located in Asiatic USSR. The deficiency of European USSR is aggravated by the fact that nearly half of the timber reserves are located in watershed areas, where only limited extraction of timber is permitted. The principal timber-supplying regions of European USSR are in the European North, the Karelo-Finnish SSR, and the Kama River Basin. In spite of the considerable timber resources of the Soviet Union, the main industrial centers are located in the timber-deficient areas, where it is necessary to bring in timber and lumber by rail transportation.

The geographic distribution of timber reserves, timber-processing industries, and the main industrial centers throughout the country predetermines the flow routes of timber from the east to the west and from the north to the south. The average length of haul of timber via rail during the past few decades is shown in the following table:

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<u>Kilometers</u>		<u>Kilometers</u>	
1913	415	1943	699
1934	743	1944	749
1940	15019	1945	780
1941	953	1946	831
1942	632	1947	860

While the average length of haul of timber in 1946 was 830 $\sqrt{\text{sic}}$ kilometers, that of round timber was 580 kilometers, pit props 1,120 kilometers, lumber 957 kilometers, and railroad ties 877 kilometers.

The shorter average length of haul of timber via rail in prerevolutionary Russia was largely the result of irresponsible felling of timber in the easily accessible and densely inhabited regions. This impoverished the main forest areas of the north while the Asiatic part of the country was left untouched. This contributed greatly to the inefficient distribution of the wood-processing industry. Over 50 percent of plywood production was concentrated in the west and northwest; the largest sawmills were also located in European Russia. The consequences of this uneven distribution of the wood-processing industry in prerevolutionary Russia are evident in the hauling of timber via railroad even to the present time. Now, 80 percent of the sawmills, the paper industry (except the Sakhalin Island enterprises), 30 percent of the plywood industry, and a great part of the furniture industry are located in European USSR. However, timber-processing industries are beginning to be developed in the eastern regions, where the main timber reserves are located.

Inadequacies in the distribution of timber-processing industries aggravate the deficiency of the lightly wooded areas and cause excessive long-distance hauling of unprocessed timber by the railroads. The irregular distribution of the timber-processing industries leads to inefficient hauling of sawmill products, and especially plywood and furniture, from European USSR and the Urals to the Siberian regions.

In the postwar years, changes in the location of lumbering operations and the freight flow of timber via railroad are taking place. Lumbering operations in the eastern regions of the USSR are being increased along with limited operations in the south and west, within the capabilities of the limited resources of these regions.

The pattern of timber hauling via railroad and the proportion of production and consumption of timber by the main economic regions changed substantially during World War II. Thus, for example, the amount of lumber hauled in 1940 comprised 27 percent of all timber hauled. This figure sank to 17.8 percent in 1945. The decrease in the proportion of lumber in the over-all amount of timber hauling was accompanied by an increase in the need for rolling stock. Thus, if 25.27 square meters of lumber were loaded on a flat car, only 21.22 square meters of round timber could be loaded, which is almost 15 percent less. Simultaneously with the changes in the timber-hauling pattern during World War II, there occurred considerable changes in the freight flow of timber.

At the end of the war, lumbering operations, compared with 1940, increased sharply in the remoter areas, particularly in the north, the northwest, East Siberia, and the Far East. In addition, timber hauling in the west and the Volga areas exceeded the prewar level. In 1946, timber shipments via rail decreased 17 percent in comparison with 1940. Together with this, lumber hauling from the south rose from 7.2 percent in 1940 to 15 percent in 1946; from the west, it rose from 6.6 percent to 16.2 percent. The decrease in the length

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of haul of timber at the expense of increased extraction of timber from nearby regions of the west and south occurred during the war as a consequence of the forced felling of local important timber and timber from the watershed areas. Because of the deficiency of coal in the central areas of the country, there occurred intensified felling of timber for firewood, particularly in the Moscow area.

During the war years, along with the general decrease in the procurement of pit props in the north (one of the main sources for European USSR), the need for pit props in this area increased. The requirements for pit props increased substantially in West Siberia and the importing of mine timber into Kazakhstan and Central Asia also increased. In the postwar period, there came about a rapid transfer of lumbering operations to the east and northeast, which caused an increase in the length of haul of timber via rail.

Planning Timber Hauling

The main feature in planning timber hauling via rail is the great number of timber shippers. In addition to the Ministry of Timber and Paper Industry USSR, whose shipments of timber comprise 60 percent of the total, there are 150 other ministries and organizations engaged in their own procurement of timber and carrying out the shipping of this timber for their respective consumers. The large number of timber shippers has a great influence on the organization of timber hauling via the railroads.

Planning the hauling of pit props and the special types of lumber of all timber shippers, as well as timber procured by the Ministry of Timber Industry USSR, the Ministry of Internal Affairs, and the Ministry of Forestry USSR, is centered in Glavlesosbyt (Main Administration of Timber Sales) of the Ministry of Timber and Paper Industry USSR. Planning the hauling of the rest of the timber is done by the timber-supplying ministries, which receive separate carloading norms from Gossnab USSR (State Committee for the Material and Technical Supply to the National Economy, Council of Ministers USSR).

In conformance with the carloading norms prepared by Gossnab USSR for each quarter for the Ministry of Timber and Paper Industry USSR and the timber-supplying ministries, all ministries and departments present to Gossnab USSR a timber-hauling plan for each type of material according to railroad system of origin and railroad system of destination.

Then for each type, Gossnab USSR prepares an over-all plan of hauling according to railroad system of origin and railroad system of destination. Obviously inefficient hauls, permitted various shippers, are excluded from the plan and, when necessary, are limited to exchanges of timber between self-supplier ministries to prevent inefficient hauling of timber via the railroads.

This over-all plan is referred to the Ministry of Transportation for execution. The Ministry of Transportation transmits to the administrations of the railroad systems the timber carloading norms for each ministry according to railroad system of origin and railroad system of destination.

In turn, the self-supplier ministries submit timber carloading norms to their local organizations, which present to the railroad administrations detailed plans of hauling according to stations and systems of origin and stations and systems of destination.

A separate plan of hauling for mine timber and other special types of lumber is compiled in the Main Administration of Timber Sales of the Ministry of Timber and Paper Industry USSR.

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All ministry-consumers which are provided with timber according to a supply plan present to the Ministry of Timber and Paper Industry USSR orders with designated points of consumption of this or that kind of timber. The Ministry of Timber and Paper Industry USSR, knowing the distribution of timber resources according to trusts, assigns the separate trusts to consumers. A detailed plan of hauling according to station and system of origin and destination is presented to the administrations of the railroad systems by the timber trusts.

In the areas of heavy timber loading, where there are several trusts, the plan of hauling for each railroad is prepared by the Ministry of Timber and Paper Industry USSR.

The centralization of planning timber hauling and the wide use of timber interchange operations between enterprises of the various ministries and departments are unfailing means of preventing inefficient hauling of timber via the railroads.

Standard Freight Flow Pattern for Timber

The standard freight flow pattern for timber on the railroads, separated into basic types, permits the subordination of the planning of timber hauling to a definite order and prevents the inefficient hauling of timber via the railroads.

The first standard freight flow pattern for timber was developed by the NKPS (People's Commissariat of Transportation) and Narkomles (People's Commissariat of Timber Industry) in 1935 - 1937. In 1941, after the organization of the Main Administration of Timber Sales and, subsequently, Glavsnabes (Main Administration for the Supply of Timber to the National Economy, Council of Ministers USSR), the planning of wood and timber hauling was accomplished by a centralized order.

In spite of a number of measures to decrease the length of haul and the number of partially loaded hauls, the railroads have permitted excessive long hauling and counterhauling of timber. In 1944, 2,600 carloads of timber were hauled from Siberia to the Urals, a distance of 2,500 kilometers. In European USSR, 3,100 carloads were hauled a distance of more than 4,000 kilometers. Also, timber from the Siberian railroads was sent to the Kuybyshev System and the Central Asian railroads and from the Kazan' System to the Odessa, Stalin, and Southern Systems. Together with the excessive long hauling and counterhauling via the railroads, scattered loading of timber was permitted, hindering the long-distance through hauling of timber and excessively clogging the rail centers. River transportation has not been sufficiently used for transporting timber, particularly by industrial enterprises located along the floating rivers.

In 1945, the government introduced the following limitations on hauling timber via rail:

1. Prohibited the hauling of timber from the railroads of the Urals, i. e., the Perm' System (east of Yar), the Sverdlovsk System, the South Ural System, beyond the South Ural System, the Orenburg System, the Omsk System, and the Karaganda System, except for plywood, ties, and timber necessary for agricultural machine building and motor vehicle and railroad car building.

2. Prohibited the hauling of timber, excluding cedar and larch, from the Siberian railroads, i. e., the Tomsk System, the Krasnoyarsk System, and the East Siberia System west of the station of Omsk.

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In 1945, the government boosted timber procurement in Kemerovo, Novosibirsk, and Tomsk oblasts in order to stop the hauling of pit props to the Kuznetsk Basin from the Krasnoyarsk System.

In order to relieve the railroads of carrying timber, increased timber procurement was provided for in the Kama and Unzha river basins, the Karelia area, Arkhangel'sk, Leningrad, Kirov, and Vologda oblasts, Belorussia, Western Ukraine, Northern Caucasus, and the Ural regions. The creation of a timber transshipping base at Astrakhan' made it possible to ship timber, procured in the Kama River Basin, by river transportation to Astrakhan', where it is transshipped and then sent by rail or maritime transport to the Caucasus railroads. By 1950, the hauling of timber and timber floating along the Kama River should sharply increase and amount to 14.4 million cubic meters. This timber goes mainly to consumers in the Ural and Volga areas. In 1950, the transit floating of timber in a southerly direction along the Kama River should amount to about 9 million cubic meters of assorted commercial types of timber.

To make the freight flow of timber more efficient, the Ukraine, Belorussia, the Karelo-Finnish and Baltic republics, and the Arkhangel'sk and Vologda areas have been directed to supply pit props to the Donets Basin.

In 1946, the Ministry of Transportation, jointly with Glavsnabes, approved a list of permissible freight-flow routes for hauling pit-prop timber, round construction timber, saw logs, timber supports, and general lumber. This list is given in the appended table of permissible flow routes.

This plan, now in operation, must be considered temporary and subject to amendment because of the changing distribution of the timber-procurement operations.

In 1948, the Council of Ministers USSR, by decree, adopted resolutions aimed at the abolition of counterhauling of timber and the more complete satisfaction of the requirements of enterprises located in interior points. By the same decree it adopted resolutions prohibiting, beginning with 1949, the hauling of timber (excluding pit props, high-quality coniferous wood, larch, oak, basswood, plywood, matchstick wood, and shipbuilding timber) from forests of the second group, located in Vladimir, Voronezh, Kalinin, Kuybyshev, Novosibirsk, Ryazan', Tambov, and Pskov oblasts, and also in the Ukrainian SSR.

Any necessary changes are to be introduced to conform to the changes in the location of the timber stocks in the hauling of timber in 1949 - 1950.

With a view toward future efficient timber hauling, the Council of Ministers USSR decreed a decrease in the hauling of commercial timber via railroads to West Siberia from the Urals and to the Urals from the central areas, starting 1 July 1949, and an increase in the hauling of commercial timber in West Siberia and the Urals. Starting with the second quarter of 1949, in connection with the growth of timber procurement in Primorskiy Kray, the hauling of timber to Primorskiy Kray on the Amur and Far East systems is to be prohibited. Simultaneously with the beginning of the 1949 navigation period, hauling timber via railroad to the following towns located on water routes is prohibited: Astrakhan', Kotlas, Onega, Tyumen', Omsk, Svobodnyy, Vologda, Kineshma, Ul'yansovsk, Kostroma, Gor'kiy, Stalingrad, Arkhangel'sk, Biysk, Krasnovodsk, and Kazan'. These cities should be completely supplied with timber by rafting.

Improving Timber Hauling

The fundamental task in improving timber hauling via railroads is to improve the distribution of timber-procurement areas in relation to the consumption of timber in the USSR and to facilitate the freight flow of timber via rail on this basis.

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In distributing the timber-procuring areas, it is necessary that rail-road hauling of timber between areas be effected along the shortest routes, chiefly from the north to the south, and to reduce to an indispensable minimum the long-distance hauling of timber.

To improve timber hauling by the rail roads, the supplying of timber will be carried out as follows:

1. European USSR is to be provided with timber through a maximum increase of timber procurement in the areas of the European North, the Karelo-Finnish SSR, and the Kama and Vyatka rivers. Increasing timber procurement in the European North presupposes the utilization of the forests of the Mezen', Vychegda, Pechora, Northern Dvina, and Onega rivers. Increasing timber procurement in the Kama River Basin permits the fulfillment of timber requirements of the Ural and Volga regions and an increase of through rafting of timber to Astrakhan' to satisfy the demands for timber in the Caucasus, the Donets Basin, and Central Asia.
2. Central Asian areas should satisfy their timber requirements from the resources of West Siberia and Krasnoyarsk Kray.
3. The Karaganda Coal Basin should be supplied with Siberian timber.
4. The Kuznetsk Coal Basin should be supplied with timber from the Ob'-Irtysk Basin and West Siberia.
5. Timber requirements of Primorskiy Kray should be met from local resources, which will necessitate increased procurement of local timber.

Together with the development of timber procurement and the increased proportion of river transportation in the hauling of timber, improvements in location of timber-processing industries, particularly sawmills, are very important in making timber hauling via railroads more efficient. This should be attained through the increased construction of timber-processing enterprises in the procurement areas, and also at river and rail transportation junction points. It is expedient to saw round timber at the procurement area and to limit the hauling of saw logs over distances greater than 300 kilometers.

Replacing the hauling of commercial timber with the hauling of finished products and semifinished products would relieve the railroads. The efficient location of sawmills is an important factor in reducing the volume of timber hauling via railroads.

The natural and artificial seasoning of raw timber and the peeling of timber has great importance in relieving the railroads of inefficient timber hauling. It is necessary to keep in mind that in green timber, water accounts for 40 percent of the total weight. This complicates its transportation over long distances. Drying the timber and hauling it in sawed form reduces the requirements for rolling stock, as is shown in the following table:

<u>Type of Timber</u>	<u>Amt of Timber</u> (1,000 cu m)	<u>Carload</u> (tons)	<u>No of Cars</u> <u>Required</u>
Round timber	1,000	20	50,000
Round timber converted to green lumber	300	25	12,000
Timber converted to dried lumber	300	30	10,000

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A big factor in reducing inefficient hauling is the development of lumber interchange operations between the various timber producers.

Table of Permissible Flow Routes

Listed below are the permissible flow routes for pit-propping timber, round construction timber, saw logs, support timber, and general lumber, according to railroad system of origin and destination, as of 1 September 1946. This list was approved by the Minister of Transportation and Chief of Glensables in order No 565T⁵²⁴ of 14 August 1946.

Numbers in parentheses and asterisks refer to notes in the "Remarks" column of the table.

Originating Railroad System	Railroad Systems of Destination			Remarks
	Round Timber	Round Construction Timber, Saw Logs, Support Timber	General Lumber	
Kirov	October North Donets South Donets	October Kalinin Moscow Inner Belt Line	October Kalinin Moscow Inner Belt Line Moscow-Kiev (1)	Lumber from Omega station considered originating on Northern System (1) Not beyond Bry- ansk
October	Kalinin Moscow Inner Belt Line Moscow-Kursk South Donets Moscow-Donbass	Kalinin Moscow Inner Belt Line Moscow-Kiev Moscow-Kursk	Kalinin Moscow Inner Belt Line Moscow-Kiev (2)	(2) Not beyond Bry- ansk
Kalinin	North Donets* Moscow-Donbass Moscow-Kursk	October (3) Western Moscow-Kiev (4) Yaroslavl' (5) Moscow Inner Belt Line	Western Moscow Inner Belt Line Yaroslavl' (5) October (3)	*Only small pit props 10cm thick and finished sup- ports up to 1.8m long (3) Only from Bez- hetsk-Bologoye, Staraya-Russa- Bologoye, and Krestny-Valday Sectors

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				(4) Not beyond Bryansk
Estonian	North Donets	October	October	(5) Only from Udovlya-Bezhevk Sector
Latvian	North Donets South Donets	Western (6) North Donets South Donets Stalin North Caucasus Ordzhonikidze Azerbaijdzhan Transcaucasus	Western (6) Southern North Donets South Donets Stalin North Caucasus Ordzhonikidze Azerbaijdzhan Transcaucasus	(6) Only on Bigosovo-Smolensk and Stolbtsy-Smo- lenak Sectors and adjoining sections
Lithuanian	North Donets South Donets	Western (7) South Donets North Donets Stalin North Caucasus Ordzhonikidze Azerbaijdzhan Transcaucasus	Western (7) Southern North Donets South Donets Stalin North Caucasus Ordzhonikidze Azerbaijdzhan Transcaucasus	(7) Only to Minsk
Western	Moscow-Kursk (8) North Donets	Belorussian Southern North Donets North Caucasus Moscow Inner Belt Line (8a)	Belorussian Southern Stalin Moscow Inner Belt Line (8a)	(8) Only from Moscow-Mozhaysk Sector (8a) From Moscow- Mozhaysk Sector for Dvortsa Sovetov
Belorussian	Southern North Donets	Southern North Donets	Moscow-Kiev (9) Southern	(9) Only on Bryansk- Deshin Sector

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	South Donets North Caucasus Ordzhonikidze Transcaucasus Azerbaydzhan	South Donets Stalin North Caucasus Ordzhonikidze Azerbaydzhan Transcaucasus	North Donets South Donets Stalin Azerbaydzhan	
Brest-Litovsk	North Donets South Donets Stalin North Caucasus Transcaucasus	North Donets South Donets Stalin Western (10)	Southwestern North Donets South Donets Stalin North Caucasus Ordzhonikidze Azerbaydzhan Transcaucasus	(10) Only from Baranovichi-Stolb- tsy Sector to Minsk
Kovel'	North Donets South Donets	Southwestern Vinnitsa Odessa Stalin North Donets South Donets	Southwestern Vinnitsa Odessa North Donets South Donets Stalin	
L'vov	Odessa North Donets South Donets Stalin	Kishinev Odessa Stalin South Donets Vinnitsa	Kishinev Odessa South Donets Stalin Vinnitsa	
Kishinev	Odessa South Donets Stalin	Odessa Stalin	Odessa Stalin	
Southwestern	Stalin South Donets	Stalin South Donets Odessa	Stalin South Donets	

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Vinnitsa	South Donets Stalin	Odessa Stalin	Odessa Stalin	
Odessa	North Donets (11) South Donets (11) Stalin (11)			(11) Only oak mine timbers
Northern	October Moscow Inner Belt Line Moscow-Kiev (14) Moscow-Kursk North Donets* South Donets* Moscow-Donbass North Caucasus	October Kalinin (13) Western (13) Yaroslavl' Moscow-Ryazan' Moscow Inner Belt Line Moscow-Kiev (14) Moscow-Kursk Moscow-Donbass South Eastern North Caucasus Ordzhonikidze Azerbaijdzhan Transcaucasus North Donets Southern	October (12) Kalinin (13) Western (13) Yaroslavl' Moscow-Ryazan' Moscow Inner Belt Line Moscow-Kiev (14) Moscow-Kursk Southern Moscow-Donbass North Donets Southern North Caucasus Ordzhonikidze Azerbaijdzhan Transcaucasus	(12) For Leningrad and Moscow (13) Only in stations of Moscow Rail Center (14) Only on Moscow- Bryansk Sector *Only small pit props 10 cm thick and finished supports up to 1.8m long
Yaroslavl'	Moscow-Kursk North Donets Moscow-Donbass	Moscow Inner Belt Line Moscow-Kursk Moscow-Donbass	Moscow Inner Belt Line Moscow-Kursk Moscow-Donbass	
Gor'kiy	Moscow-Kursk Moscow-Donbass Southeastern North Caucasus North Donets* Stalingrad	Moscow-Ryazan' Moscow Inner Belt Line Moscow-Kursk Moscow-Donbass Southeastern	Moscow-Ryazan' Moscow Inner Belt Line Moscow-Kursk Southeastern Stalingrad	*Only small pit props 10 cm thick and finished supports up to 1.8 m long

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		Stalingrad North Caucasus Ordzhonikidze Transcaucasus Azerbaijdzhan	North Caucasus Ordzhonikidze Transcaucasus Azerbaijdzhan	
Moscow-Ryazan'	North Donets* Southeastern Moscow-Donbass Ryazan'-Ural	Moscow Inner Belt Line (15) Southeastern	Moscow Inner Belt Line (15) Southeastern	(15) Only from Cherusti-Iyubertsy Sector *Only small pit props 10 cm thick and finished supports up to 1.8 m long
Moscow-Kiev	Moscow-Kursk Southern North Donets South Donets	Moscow-Kursk Southern North Donets South Donets North Caucasus Ordzhonikidze Stalin	Moscow-Kursk Southern South Donets Stalin	
Kazan'	Stalingrad Tashkent Ashkhabad Karaganda (17)	Moscow Inner Belt Line (16) Moscow-Ryazan' (16) Stalingrad North Caucasus Ordzhonikidze Azerbaijdzhan Transcaucasus Ryazan'-Ural Kuybyshev	Moscow Inner Belt Line (16) Stalingrad North Caucasus Ordzhonikidze Azerbaijdzhan Transcaucasus Ryazan'-Ural Kuybyshev	(16) Only from Arzamas-Cherusti Sector (17) Only from Drushinino-Agryz Sector
Pechora	Moscow Inner Belt Line North Donets	Yaroslavl' Gor'kiy Moscow-Ryazan'	Yaroslavl' Gor'kiy Moscow-Ryazan'	

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	South Donets Moscow-Donbass North Caucasus Karaganda	Moscow-Kursk Moscow Inner Belt Line Moscow-Donbass Southeastern North Caucasus Ordzhonikidze Azerbaijzhan Transcaucasus North Donets South Donets	Moscow-Kursk Moscow Inner Belt Line Moscow-Donbass Southeastern North Caucasus Ordzhonikidze Azerbaijzhan Transcaucasus
Southern	North Donets	North Donets South Donets	North Donets
North Donets	South Donets	South Donets	
Southeastern	North Donets (18)		(18) Only oak mine timbers
Stalingrad	North Caucasus Ordzhonikidze Transcaucasus	North Caucasus Ordzhonikidze Transcaucasus Azerbaijzhan	North Caucasus Ordzhonikidze Transcaucasus Azerbaijzhan
North Caucasus	Transcaucasus	Ordzhonikidze Azerbaijzhan Transcaucasus	Ordzhonikidze Azerbaijzhan Transcaucasus
Ordzhonikidze	Azerbaijzhan Transcaucasus	Azerbaijzhan Transcaucasus	Azerbaijzhan Transcaucasus
Ryazan'-Ural	Tashkent Ashkhabad	Tashkent Ashkhabad	
Kuybyshev	Ryazan'-Ural Orenburg (19) Tashkent (19) Ashkhabad (19)	Stalingrad Ryazan'-Ural North Caucasus Orenburg (19)	Stalingrad Ryazan'-Ural Orenburg (19) Tashkent (19) (15) From sectors on the left bank of the Volga River

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Orenburg		Tashkent (19) Ashkhabad	Ashkhabad (19) North Caucasus Ordzhonikidze Azerbaijkan Transcaucasus
Turkestan-Siberia		Tashkent Ashkhabad	
Perm'	North Caucasus (20) South Ural	Moscow Inner Belt Line (20) Kuybyshev (20) Ryazan'-Ural(20) Sverdlovsk (21) South Ural	(20) Only from Fosforitnaya- Yar-Kirov Sector (21) Only on the Shalya-Sverd- lovsk Sector
Sverdlovsk	Orenburg South Ural Karaganda	Orenburg South Ural Karaganda Omsk (22)	(22) To Tatarskaya inclusive and to Pavlodar
South Ural	Orenburg Karaganda	Orenburg Omsk (23) Karaganda	(23) To Tatarskaya inclusive and to Pavlodar
Omsk	Tomsk		By finished pit props up to 3 m long
Tomsk	Turkestan- Siberia Tashkent Ashkhabad	Turkestan- Siberia Tashkent Ashkhabad	
Krasnoyarsk		Omsk (23) Turkestan- Siberia	Omsk (23) Turkestan- Siberia

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East Siberia

Transbaykal

Tashkent
Ashkhabad
Tomsk

Tashkent
Ashkhabad
Tomsk

Turkestan-
Siberia
Tashkent
Ashkhabad
Omsk (23)
Tomsk
Krasnoyarsk
Transbaykal

Turkestan-
Siberia
Tashkent
Ashkhabad
Omsk (23)
Tomsk
Krasnoyarsk
Transbaykal

Amur

Transbaykal

Far East
Primorskiy

Far East

Amur
Primorskiy

Primorskiy

Primorskiy

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NOTE: Freight flow routes for intrasystem hauling are made up by the chiefs of the respective systems. Not included in the above list are special hauls of timber permitted by the government. These hauls are carried out on special orders of the Ministry of Transportation and Glavlesosbyt or the Ministry of Timber and Paper Industry USSR.

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